

- (3) March and Nosker, each further taken with Machi or Armenti, are deficient in not teaching that the shape of the railroad tie is wider at the bottom than at the top.

Evidence of Non-obviousness

Applicants respectfully disagree with the Examiner that the Affidavit under 37 CFR 1.132 filed 17 November 2006 (the "First Bayer Declaration") is insufficient to overcome the rejections since the showing is not commensurate in scope to the claims in the polymers used. Applicants' previously submitted the First Bayer Declaration which provided evidence of long felt but unsolved need, unexpected and superior results, and commercial success. Applicants hereby incorporate by reference the First Bayer Declaration and accompanying exhibits therein. Applicants submit that the First Bayer Declaration and accompanying exhibits provided sufficient evidence of nonobviousness to overcome the references cited.

Notwithstanding, Applicants submit herewith the Second Declaration of John C. Bayer Under 37 CFR 1.132 (the "Second Bayer Declaration") which provides evidence commensurate in scope with the claims in the polymers used. In the Second Bayer Declaration, the cross-ties discussed in the letters previously submitted with the First Bayer Declaration were made in accordance to the pending claims. As the cross-ties described in the letters meet the limitations of the claims, the Second Bayer Declaration offers a showing commensurate in scope to the claims in the polymers used. High density polyethylene ("HDPE") is a type of polyolefin.

The relevance of long-felt need and the failure of others to the issue of obviousness depends on several factors. First, the need must have been a persistent one that was recognized by those of ordinary skill in the art. In re Gershon, 372 F.2d 535, 539, 152 USPQ 602, 605 (CCPA 1967). In the present application, the problem of replacing chemically treated wood railroad cross ties is well known. Second, the long-felt need must not have been satisfied by another before the invention by applicant. Newell Companies v. Kenney Mfg. Co., 864 F.2d 757, 768, 9 USPQ2d 1417, 1426 (Fed. Cir. 1988). In the present application, Applicants believe themselves to be the first inventors of the railroad ties as claimed (see Declaration of Inventors previously filed). Third, the invention must

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in fact satisfy the long-felt need. In re Cavanagh, 436 F.2d 491, 168 USPQ 466 (CCPA 1971). MPEP 716.04. The First Bayer Declaration provides exhibit attachments which show that the invention as claimed has solved this problem. The Second Bayer Declaration provides a further showing that the trapezoidal shape offers substantial performance satisfaction.

“A greater than expected result is an evidentiary factor pertinent to the legal conclusion of obviousness ... of the claims at issue.” In re Corkill, 711 F.2d 1496, 226 USPQ 1005 (Fed. Cir. 1985). The First Bayer Declaration shows that the results were greater than those which would have been expected from the prior art to an unobvious extent, and that the results are of a significant, practical advantage. Ex parte The NutraSweet Co., 19 USPQ2d 1586 (Bd. Pat. App. & Inter. 1991); MPEP 716.02(a). The Second Bayer Declaration shows significant practical advantages of the trapezoidal shape.

To be pertinent to the issue of nonobviousness, the commercial success of devices falling within the claims of the patent must flow from the functions and advantages disclosed or inherent in the description in the specification. MPEP 716.03(b). Again, as indicated by the exhibits to the First Bayer Declaration, additional purchases were made specifically due to the performance of the railroad ties as claimed in the present application.

Rejection of Claims 36-39, 44-47, and 64-74 under 35 U.S.C. 103(a)

Applicants hereby traverse the rejection under 35 U.S.C. §103(a) of claims 36-39, 44-47, and 64-74. The claims were rejected based upon combinations of the following references: U.S. Patent No. 5,658,519 issued to March, U.S. Patent No. 5,916,932 issued to Nosker, U.S. Patent No. 3,933,731 issued to Machi, U.S. Patent No. 4,165,302 issued to Armenti, U.S. Patent No. 4,925,094 issued to Buekett, and U.S. Patent No. 4,083,491 issued to Hill. The Examiner also mentions U.S. Patent No. 2,985,617 issued to Salyer and U.S. Patent No. 5,128,397 issued to Horsey.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference

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teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). MPEP 706.02(j). Applicants respectfully submit that none of these criteria have been met by the office action dated January 11, 2007.

When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to: (A) The claimed invention must be considered as a whole; (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination; (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and (D) Reasonable expectation of success is the standard with which obviousness is determined. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986); MPEP 2141.

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). Applicants respectfully submit that it is inappropriate to combine the references as cited in the January 11, 2007 Office action because those references would not result in Applicants' invention as claimed.

March teaches the use of rigid reinforcing bars; March discloses "rigid reinforcing bars are embedded within the plastic shell to stiffen the composite structure" (see March at col. 3, line 17). March further teaches that "at least four reinforcing bars are preferably used" (see March at col. 3 line 58 - col. 4, line 30). Any combination of references which include March must therefore include the use of the "reinforcing bars" of March.

Nosker teaches use of a "coated fiber component" (see Nosker at col. 4, lines 32-35). Nosker further discloses that the "fillers" are "coated fiberglass" (see Nosker at col. 5, line 26 - col. 6, line 24). Any combination of references which include Nosker must therefore include the use of the

coated fiber reinforcing materials of Nosker.

There is no suggestion or motivation to combine Machi with March or Nosker to obtain Applicants' invention as any such combination would require either the reinforcing bars of March or the coated fillers of Nosker. Likewise, there is no suggestion or motivation to combine Armenti with March or Nosker to obtain Applicants' invention, again, as any such combination would require either the reinforcing bars of March or the coated fillers of Nosker.

Applicants respectfully disagree that either Buckett or Hill would suggest the manufacture of thermoplastic ties with a trapezoidal shape. Buckett teaches concrete ties (see Buckett, claim 1) and an enhancement to reduce the abrasive effects of the rail on the concrete tie. Nothing in Buckett suggests a tie should be made in a trapezoidal shape. Hill teaches use of a rigid corrugated metal with rail support blocks (see Hill at col. 2, lines 50-52). While the blocks are larger on the bottom than on the top, this relates to the length of the block, and not its width. Nothing in Hill suggests a trapezoidal tie (as viewed from the end of the tie) could be constructed as a full length tie, without the need for corrugated steel reinforcement. Neither Buckett nor Hill indicates why it would be advantageous to make thermoplastic railroad cross ties in a trapezoidal shape. Further, Applicants submit that if Hill taught that a trapezoidal shaped composite tie was strong enough to support a train load, then Hill would not require the corrugated steel plates. Likewise, Applicants submit that if Buckett taught that a trapezoidal shaped composite tie was strong enough to support a train load, then Buckett would not require steel supports. As indicated in the Second Bayer Declaration, the trapezoidal shape of the Applicants' invention has proven to be extremely beneficial. "Because that insight was contrary to the understandings and expectations of the art, the structure effectuating it would not have been obvious to those skilled in the art." 713 F.2d at 785, 218 USPQ at 700 (citations omitted).). Schenck v. Nortron Corp., 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983); MPEP 2141.02.

#### Conclusion

Applicants respectfully submit that the application is in condition for allowance. A Notice

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of Allowance is hereby respectfully requested.

Should the Examiner feel that a telephone conference would advance the prosecution of this application, he is encouraged to contact the undersigned at the telephone number listed below.

Applicants respectfully petition the Commissioner for extension of one (1) month to render this paper timely. **The \$60 fee is being charged to Deposit Account No. 50-0694.**

Please charge any additional fees due or credit any overpayment to Deposit Account No. 50-0694.

Respectfully submitted,

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